1. Requirement statement: Continued Research and Development will be performed for a physically-based frozen ground algorithm for the Sacramento Model.

2. Background
Dr. Victor Koren has already made significant progress on this new technique which replaces the existing algorithm in the SAC-SMA model. Victor s prototype version has already proven to accurately compute soil temperatures and values of frost index.
Victor s research on this has already resulted in profitable modifications to SNOW-17 (ie, computes snow depth for calibration).

Research and Development Project	Project Justification		
	Service Benefit	Science	Other
Frozen Ground Modeling: Replace existing empirical SAC-SMA approach with a physically-based approach.	1. A new algorithm is being developed that has less parameters to calibrate. 2. Benefit to **all** RFCs with cold seasons.	1. Method is physically based. 2. Would replace existing empirical method in SAC-SMA derived by Eric Anderson and Pat Neuman of NCRFC. 3. Prototype version accurately simulates soil temperatures.	1. Methodology is almost complete and needs to be thoroughly tested. 2. This research is an FY 2001 AOP item for OHD/HL

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